



Priority document for  
5,110,689,573  
filed 2002-07-30-2003  
C. J. L. L. L.

Patent Office  
Canberra

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND  
SALES hereby certify that annexed is a true copy of the Provisional specification  
in connection with Application No. 2002950515 for a patent by SDI LIMITED  
as filed on 01 August 2002.

WITNESS my hand this  
Twenty-second day of August 2003

*J. Billingsley*

JULIE BILLINGSLEY  
TEAM LEADER EXAMINATION  
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COMMON

APPLICANT:

SDI LIMITED

NUMBER:

FILED:

AUSTRALIA

THE PATENTS ACT 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED

*"A DENTAL MATERIAL CONTAINER"*

The present invention will be described in the following statement:

## TITLE

### "A DENTAL MATERIAL CONTAINER"

The present invention relates to a dental material container.

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In accordance with one aspect of the present invention there is provided a dental material container comprising a first chamber arranged to receive a liquid, a second chamber arranged to receive a solid material a dispensing first wall member, a member separating the first and second chambers, a second wall member separating the second chamber and the dispensing member, means for applying pressure to the liquid to cause it to be expelled through the wall member into the first chamber and means being provided for expelling dental material from the second chamber through the second wall member into the dispensing member.

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The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a side view of a container in accordance with the present invention in section and in disassembled condition;

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Figure 2 is a view similar to Figure 1 with the components of the container in assembled condition;

Figure 3 is a view similar to Figure 2 in which the container is partially activated; and

Figure 4 is a view similar to Figure 3 in which the container is fully activated.

In the drawings, there is shown a dental material container 10 which has a hollow generally cylindrical body 11. The body 11 has a first end 12 and second end 13. A receptacle 14 is arranged to be inserted into the body 11 at the first end 13 thereof as shown in Figure 2. The receptacle 14 is of less length than the body 11 and has a first open end 15 and a second closed end 16. Further the receptacle 14 is hollow and of generally cylindrical shape. The receptacle 14 has a cylindrical wall section 26 which is internally smooth. Also, the wall 26 of the receptacle 14 is provided with a circumferential groove 17 which engages, in use, with a corresponding internal circumferential rib 18 in the body 11.

Further, the body 11 at the first end 12 thereof is provided with a circumferential recess 19. The recess 19 engages in use with an outwardly extending circumferential rib 20 at the first end 15 of the receptacle 14. Thus, as shown in Figure 2 when assembled the receptacle 14 extends partially into the body 11 with the groove 17 in engagement with the rib 18.. At the second end 16 of the receptacle 14 there is provided a transverse wall member 22 which has a central weakened portion 24. The weakened portion 24 may be formed of a relatively thin portion of the wall member 22. The second end 16 of the receptacle 14 is, as shown, inserted foremost into the body 11 at the first end 13 thereof.

Further, a plunger 30 is arranged to be inserted into the receptacle 14 when the latter is assembled as shown in Figure 2. The plunger 30 is of generally cylindrical external shape and has an outwardly extending flange 32 at an outer end 34. Initially, as shown in Figure 2, the plunger 30 is inserted partially into the receptacle 14.

Still further, an inner end 40 of the plunger 30 is spaced from the wall member 22 in the initial position of the plunger 30 to form a first chamber 42. A second chamber 44 is located between the wall member 22 and the second end 13 of the body 11. The end 13 of the body 11 is formed with an end wall member 46 which extends across the body 11 to close off the end 13 thereof. Further, the wall member 46 has a central weakened portion 48. The weakened portion 48 may be simply formed of relatively thin material compared to the remainder of the wall member 46.

Yet still further, a dispensing member 50 is mounted to the second end 13 of the body 11. The dispensing member 50 has a base 51 provided with a recess surrounded by a cylindrical wall 52. The wall 52 fits over the second end 13. Also, the wall 52 has an internal circumferential rib 54 which snap fits with a circumferential groove 56 (see Figure 1) on the body 11 adjacent the second end 13. Further, the body 11 is provided with a circumferential flange 58 against which the wall 52 abuts in the assembled condition shown in Figure 2.

Further, the dispensing member 50 is provided with a curved dispensing nozzle 60 which may be of substantially uniform internal thickness. Alternatively, the dispensing nozzle 60 may be tapered so as to have a smaller end internal thickness.

In use, the container 10 is assembled in the condition shown in Figure 2. Further, a quantity of particulate material is placed in the container 10 before the receptacle 14 is engaged with the body 11. Thus, the particulate material is contained in the first chamber 44 in the condition of the container shown in Figure 2. Then a quantity of

liquid is placed in the receptacle 14 before the plunger 30 is engaged therewith. Thus, the chamber 42 contains the quantity of liquid in the condition shown in Figure 2.

Subsequently, when the container 10 is used the plunger 30 is manually depressed until it reaches the position shown in Figure 3 at which the end 40 abuts the wall member 22. This action applies pressure to the quantity of liquid which correspondingly applies hydraulic pressure to the wall member 22. This causes the weakened portion 24 to rupture and the quantity of liquid to be expelled into the chamber 44. The liquid is thus admixed with the particulate material. The liquid and particulate material are thoroughly admixed into a homogenous dental composition by placing the container 10 in the condition shown in Figure 3 into a vibratory mixer of known type.

Then the container 10 is removed from the mixer and the plunger 30 is depressed further to the position shown in Figure 4 at which the end 40 abuts the wall member 46. This action causes the dental composition to apply pressure to the weakened portion 48 of the end wall 46. The weakened portion 48 is ruptured and the dental composition is expelled through the dispensing nozzle 60 of the dispensing member 50 directly into a tooth of a patient.

The container of the present invention is particularly envisaged for use with dental composite materials and other non-metallic dental materials.

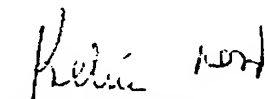
Further, as shown in the drawings the body 11 may be formed with a plurality of internal longitudinally extending grooves 62 in the chamber 44 to assist in expelling air from the chamber 44 upon movement of the plunger 30 to the position shown in Figure 4.

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Modifications and variations as would be apparent to a skilled addressee are deemed to be within the scope of the present invention

DATED THIS 31<sup>ST</sup> DAY OF JULY, 2002.

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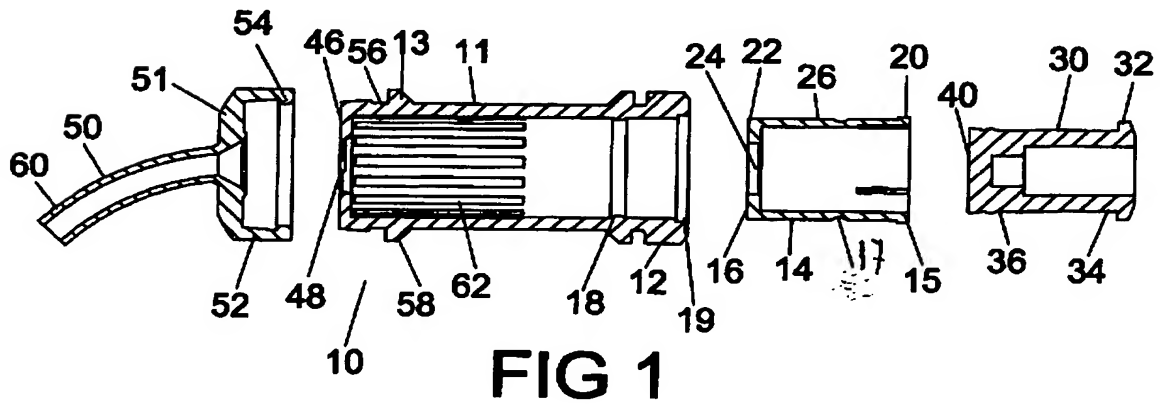
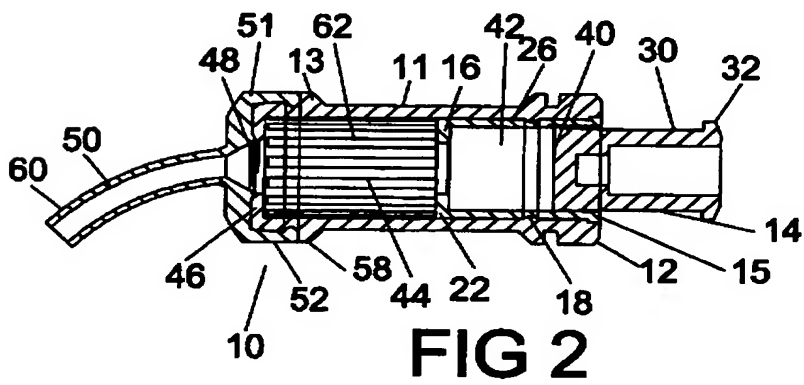
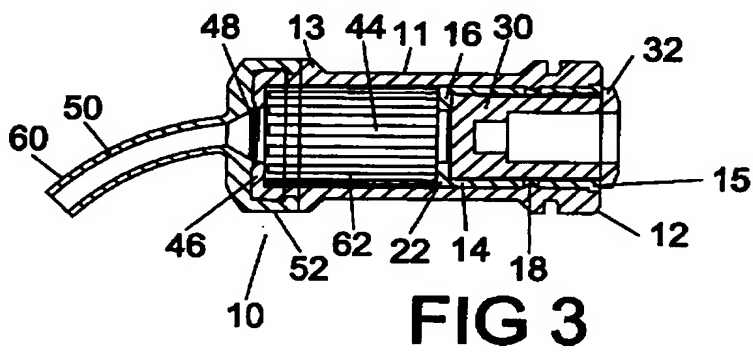
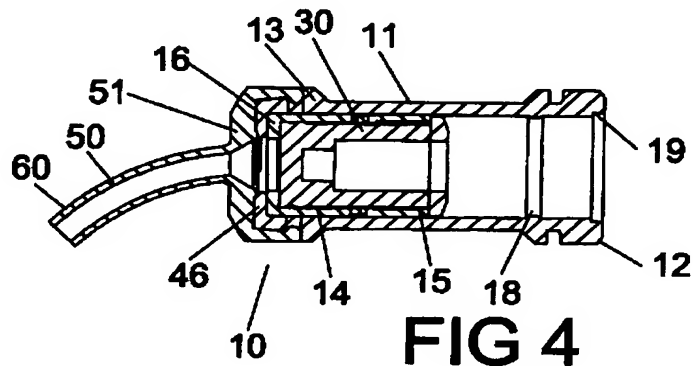


**SDI LIMITED**

By their Patent Attorneys

LORD & COMPANY

PERTH, WESTERN AUSTRALIA.





A handwritten signature in black ink, appearing to be "Mn".

**To:**

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14-March-2003

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RE: Provisional Patent Application number **2003901135**  
in the name(s) of **SDI Limited**.

Your Ref: P2002950515:NJH:SR

Dear Madam/Sir

**Filing Receipt for Provisional Specification**

Title: A dental material container

Thank you for filing a provisional patent application with IP Australia on 13 March 2003. The documents filed have been allocated application number 2003901135.

Documents: A complete specification comprising:

- description;
- drawing(s); and
- patent request.

If the filing fee for this application has not been fully paid, an Invitation to Pay will be issued to you.

Please note that filing of this application does not entitle the applicant to claim that a patent has been granted at this stage. You are reminded that in order to claim association with this application a complete application must be filed on or before 15 March 2004.

IP Australia provides brochures explaining the requirements in filing a complete application. These brochures can be obtained from this office, any of our State Offices or by visiting our website, [www.ipaustralia.gov.au](http://www.ipaustralia.gov.au). You can also obtain a printed copy by calling our toll free number 1300 65 1010.

Please refer to the allocated application number, 2003901135, in any further correspondence with IP Australia.

If you need any further information please contact (02) 6283 2898. Alternatively, you may contact us by email at [assist@ipaustralia.gov.au](mailto:assist@ipaustralia.gov.au).

**Patent Office  
Canberra**

I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003901135 for a patent by SDI LIMITED as filed on 13 March 2003.

WITNESS my hand this  
Twenty-second day of August 2003

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